ICGEB International Centre for Genetic Engineering and Biotechnology | Developing Knowledge

# ICGEB International SEMINAR PROGRAMME 2018

**Monday, 9 April 2018 | 12:00 noon** | ICGEB Seminar Room, W building | Padriciano, 99, Trieste, ITALY


## Mario ROSSI

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The development of metastasis foci in patients suffering from cancer represents a significant reduction in their survival and life quality. The Ubiquitin-Proteasome System (UPS) plays a fundamental role in the maintenance of protein homeostasis both in normal and stressed conditions, thus regulating almost every single cellular process. Since alterations in the ubiquitination cascade have been shown to be associated with malignant transformation, invasive potential of cells and metastasis, we sought to investigate the role of the UPS in the regulation of tumor-cell migration and invasion. To this end we performed a genetic screen using a shRNA library against UPS associated genes, and Boyden chambers. After the selection process, we characterized the non-migrating cell population and determined the relative abundance of each shRNA by Illumina NGS sequencing. We obtained a list of 30 candidate genes, half of which had already been associated with regulation of migration/invasion/tumorigenesis processes or metastasis.

Among the candidates, we focused on a specific DUB and demonstrated that its silencing reduces the migratory/invasive potential of different tumor-cell lines using Boyden chamber, wound healing and agarose drop invasion assays. In vivo studies demonstrated that NOD/SCID mice inoculated with silenced tumor cells present a delay in the onset of the tumor formation, compared to the tumors generated by control cells. In addition, our results also show a significant impairment in the generation of metastatic foci. Altogether, these findings demonstrate that we have identified a new novel gene that regulate migration and invasion, which might represent a new point of therapeutic intervention for the development or improvement of cancer treatments.


## *"Role of protein Ubiquitylation in tumor-cell migration and invasion"*

*Host: M. Baralle*

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